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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,855	10/30/2003	Xiao-Ming Li	123871/00001	8074

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EXAMINER

JULES, FRANTZ F

ART UNIT	PAPER NUMBER
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3617

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,855

Applicant(s)

LI ET AL

ST

Examiner

Frantz F. Jules

Art Unit

3617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

It is noticed that claim no. 11 is missing from the list of claims. Examiner's correction to the sequence of the list of claims brings the total number of the pending claims to 12 instead of 13 claims.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6, 8-9 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Dodge (US 1,209,134).

Claims 1, 6, 8-9 and 13

Dodge discloses an axle assembly comprising, in combination an axle tube (25) having a first end and a second end, a mounting module formed as a unitary extension of the axle tube; and at least one steel insert (30) positioned near the first end of the axle tube to be filled to a differential carrier. The axle comprising ductile iron.

Regarding the limitation of wherein the at least one steel insert (30) is adapted to be welded with a differential carrier to secure the axle tube to the differential carrier, it is the examiner's position that a positive recitation of welding of the tube to the carrier by the inserts is not being claimed.

Dodge discloses an axle assembly comprising, in combination an axle tube (24) adapted to provide structural support to a motor vehicle; and a differential carrier (10)

Art Unit: 3617

adapted to provide a structural support for a gear transmission of the motor vehicle and formed as a unitary extension of the axle tube in accordance with claim 8.

The axle assembly further comprising a second axle tube (25) having a first end and a second end, wherein the first end of the second axle tube axle tube is secured to the differential carrier in accordance with claim 9.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 8-9 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Sellors (GB 2 257 402 A).

Claims 8-9 and 13

Sellors discloses an axle assembly comprising, in combination an axle tube (A) adapted to provide structural support to a motor vehicle; and a differential carrier (31) adapted to provide a structural support for a gear transmission of the motor vehicle and formed as a unitary extension of the axle tube.

The axle assembly further comprising a second axle tube (B) having a first end and a second end, wherein the first end of the second axle tube axle tube is secured to the differential carrier.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3617

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodge as applied to claim 1 and in view of Bear et al (US 5,664,847).

Claims 3-4

Dodge teaches all of the limitations of claim 1 except for an axle assembly wherein the mounting module comprises at least one of a yoke, a shock absorber attachment bracket, a stay bar attachment bracket, an upper control arm attachment bracket, a lower control arm attachment bracket, a spring seat, a jounce bumper bracket, a steering damper attachment bracket, and a track bar attachment bracket that is formed unitary with the axle in a lost foam process. The general concept of providing a modular tubing of an axle assembly formed of a casting process to be welded to a differential carrier is well known in the art as illustrated by Bear et al which disclose the teaching of "a mounting module comprises at least one of a yoke (44), a shock absorber attachment bracket, a stay bar attachment bracket (40), an upper control arm attachment bracket (36), a lower control arm attachment bracket (38), a spring seat (42), a jounce bumper bracket (34), a steering damper attachment bracket, and a track bar attachment bracket, see fig. 2, abstract section; the mounting module is formed unitary with the axle in a lost foam process as disclosed on page 2 of applicant's specification. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dodge to include the use of a "mounting module comprises at least one of a yoke, a shock absorber attachment bracket, a stay bar attachment

Art Unit: 3617

bracket, an upper control arm attachment bracket, a lower control arm attachment bracket, a spring seat, a jounce bumper bracket, a steering damper attachment bracket, and a track bar attachment bracket that is formed unitary with the axle in a lost foam process" in his advantageous axle assembly as taught by Bear et al in order to achieve greater structural integrity in the axle that using multiple parts welded together while reducing cost and simplify assembly into the vehicle.

7. Claims 5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodge in view of Branholt (US 5,655,418).

Claim 5

Bear et al teach all the limitations of claim 5 except for an axle assembly wherein the axle tube is press fit into an opening in the differential carrier. The general concept of press fitting a tube into an opening in the differential carrier is well known in the art as illustrated by Branholt which discloses the teaching of press fitting of an axle tube into an opening of the differential carrier, see col 5, lines 15-17, col. Lines 40-43. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dodge to include the use of press fitting of the axle tube into an opening in the differential carrier as taught by Branholt in order to reduce the amount of stress and weld needed at the junction of the tube and the differential.

Claim 7

Regarding using three steel inserts as recited in claim 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dodge to include the use three steel inserts in his advantageous system, as the duplication/reduction of

identical parts which perform essentially the same function is a common occurrence throughout the axle assembly design art, and the specific number of steel inserts used on an axle tube would have been an obvious duplication of parts, depending upon such common factors as the loading imposed on the axle assembly, the yield strength of the axle tube material, the length of the axle assembly; the ordinarily skilled artisan choosing the best number of steel inserts which would most optimize the cost and performance of the device for a particular application at hand, based upon the above noted common design criteria.

8. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodge as applied to claim 1 and in view of Bear et al (US 5,664,847).

Claims 10-11

Dodge teaches all of the limitations of claim 10 except for an axle assembly wherein the mounting module comprises at least one of a yoke, a shock absorber attachment bracket, a stay bar attachment bracket, an upper control arm attachment bracket, a lower control arm attachment bracket, a spring seat, a jounce bumper bracket, a steering damper attachment bracket, and a track bar attachment bracket that is formed unitary with the axle in a lost foam process. The general concept of providing a modular tubing of an axle assembly formed of a casting process to be welded to a differential carrier is well known in the art as illustrated by Bear et al which disclose the teaching of "a mounting module comprises at least one of a yoke (44), a shock absorber attachment bracket, a stay bar attachment bracket (40), an upper control arm attachment bracket (36), a lower control arm attachment bracket (38), a spring seat

Art Unit: 3617

(42), a jounce bumper bracket (34), a steering damper attachment bracket, and a track bar attachment bracket, see fig. 2, abstract section; the mounting module is formed unitary with the axle in a lost foam process as disclosed on page 2 of applicant's specification. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dodge to include the use of a "mounting module comprises at least one of a yoke, a shock absorber attachment bracket, a stay bar attachment bracket, an upper control arm attachment bracket, a lower control arm attachment bracket, a spring seat, a jounce bumper bracket, a steering damper attachment bracket, and a track bar attachment bracket that is formed unitary with the axle in a lost foam process" in his advantageous axle assembly as taught by Bear et al in order to achieve greater structural integrity in the axle that using multiple parts welded together while reducing cost and simplify assembly into the vehicle.

Response to Arguments

9. Applicant's arguments filed 09/10/2004 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Smart is cited to show related axle assembly comprising weld plug for fixing axle tube to the differential.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz F. Jules whose telephone number is (703) 308-

Art Unit: 3617

8780. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph S. Morano can be reached on (703) 308-0230. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frantz F. Jules
Examiner
Art Unit 3617

FFJ

November 1, 2004

FRANTZ F. JULES
PRIMARY EXAMINER

